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FALCOM
WIRELESS COMMUNICATIONS GMBH

SAMBA3G-E

HSDPA/UMTS and GSM/GPRS/EDGE

USB Modem

User's Manual

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Version history:

This table provides a summary of the document revisions.

Version	Author	Changes	Modified
1.0.1	F. Beqiri	- The SAMBA 3G modem is designed for industrial M2M applications. - Updated chapter "Scope of delivery" - Replaced *Fig.8a*, *Fig.8b* and *Fig.8c* by *Fig. 8.* - Added CAUTION.	11/12/2009
1.0.0	F. Beqiri	- Initial version	24/10/2008

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1 INTRODUCTION

This manual is focussed on the GSM/GPRS/EDGE/UMTS data solutions of the enhanced performance SAMBA3G-E USB modem from FALCOM Wireless Communications GmbH.

1.1 General

The SAMBA3G-E portable USB modem is a 3.5G wireless data modem, compact, light-weight that features a single-band *2100MHz UMTS/HSDPA* radio for data connectivity. The SAMBA3G-E is fully backward compatible to existing *EDGE and GSM/GPRS* networks and maintains the same form-factor of the well-known SAMBA55-56/SAMBA75 modems. The major benefit over earlier SAMBA55-56/SAMBA75 is that it supports HSDPA/UMTS *(Universal Mobile Telecommunications System)*.

This modem is especially designed for industrial M2M (Machine to Machine) applications.

SAMBA3G-E allows to send and receive data, including digital images, web pages and photographs, with a transfer rate up to *7.2 Mbits*. Additional features are also voice and SMS. It can be easily controlled by using AT commands for all kinds of operations. The SAMBA3G-E is designed for use on single-band *WCDMA/HSDPA 2100* network and *GSM/GPRS/EDGE 900MHz* and *1800MHz* networks. With its pocket-sized construction it is able to provide up to 7.2 Mbits Internet access by using WCDMA/HSDPA 2100. It constitutes a self contained, fully integrated implementation of the GSM/GPRS/EDGE and HSDPA/UMTS functionalities. The SAMBA3G-E provides an integrated SIM card reader and an internal GSM antenna to simplify the setup and use. The physical interface to the modem application is made through an embedded USB connector which simplifies setup and operation of the modem. It allows connection to a USB host port using the USB Docking station. The modem has an integrated LED indicator that will show the complete modem status.

About GPRS

General Packet Radio Service *(GPRS) is a high-speed, data-only service that is an add-on to the GSM (Global System for Mobile Communications) cellular network - a type of network used to provide cellular phone service. The SAMBA3G-E Modem provides reliable data connections to GPRS 900 MHz (GSM), GPRS 900 (GSM), and 1800 MHz (DCS) networks. When in regions where GPRS is not available, user can still establish 14.4 kbps GSM data connections.*

About EDGE

Enhanced Data rates for GSM Evolution *(EDGE) is a third-generation (3G) high-speed mobile data and Internet access technology, with downlink up to 236.8 kbps and uplink up to 118 kbps. The average rates are fast enough to support a wide range of advanced data services, including streaming audio and video, fast Internet access and large file downloads.*

About UMTS

Universal Mobile Telecommunications System *(UMTS) is one of the third-generation (3G) high-speed mobile data and Internet access technology, with theoretical peak rates of 473 kbps and average throughput of 110-130 kbps. The average rates are fast enough to support a wide range of advanced data services, including streaming audio and video, fast Internet access and large file downloads.*

About HSDPA

High-Speed Downlink Packet Access *(HSDPA) is a 3G (third generation) mobile telephony communications protocol in the High-Speed Packet Access (HSPA) family, which allows networks based on Universal Mobile Telecommunications System (UMTS) to have higher data transfer speeds and capacity. Current HSDPA on SAMBA3G-E supports down-link speed of up to 7.2 Mbits/s and up-link speed of up to 384 kbps.*

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1.2 Scope of delivery

Check the contents of the ordering item. The following listed parts of chosen item should be included. In case of damaged or missing any part, please contact your dealer immediately.

SAMBA3G-E

SAMBA-USB-KIT

KA18 (Y-Cable)

KA19

Ordering	Description	Quantity
SAMBA3G-E-SET	SAMBA3G-E modem incl. USB driver	1
USB-KIT*	USB-Docking station with cable extension (in red color or blue color) and USB tilt connector.	-
KA18*	Enables additional current draw from the two USB ports that can be required when EDGE data transfer is in progress only.	-
KA19*	USB extention cable	-

** Not parts of the SAMBA3G-E delivery pack. Available upon request.*

Table 1: Ordering items

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1.3 Used abbreviations

Abbreviation	Description
ETSI	European Telecommunications Standards Institute
GSM	Global System for Mobile communications
IMEI	International Mobile station Equipment Identity
ME	Mobile Equipment
EDGE	**E**nhanced **D**ata rates for **G**SM **E**volution
GPRS	General Packet Radio Service
GMSK	Gaussian Minimum Shift Keying
PLMN	Public Land Mobile Network
PIN	Personal Identification Number
PUK	Personal Unblocking Key
RP	Receive Protocol
SIM	Subscriber Identity Module
SMS	Short Message Service
SMS/PP	Short Message Service/Point-to-Point
TA	Terminal Adapter
TE	Terminal Equipment
TP	Transmit Protocol
MS	Mobile Station
USB	Universal Serial Bus
PTM	Point To Multipoint
NOM	Network Operation Mode
PPP	Point to Point Protocol
PSK	Phase Shift Keying
CSD	Circuit Switched Data
APN	Access Point Naming
IP	Internet Protocol
PDP	Packet Data Protocol
RF	Radio Frequency
UMTS	Universal Mobile Telecommunications System
HSDPA	High-Speed Downlink Packet Access

Table 2: Used abbreviations

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1.4 Related documents

1. *Telit_AT_Commands_Reference_Guide_UC864.pdf*
2. *Telit_Easy_GPRS_User__Guide_r4.pdf*

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2 SECURITY

IMPORTANT FOR THE EFFICIENT AND SAFE OPERATION OF YOUR GSM-MODEM, READ THIS INFORMATION BEFORE USE!

Your cellular engine SAMBA3G-E is one of the most exciting and innovative electronic products ever developed. With it you can stay in contact with your office, your home, emergency services and others, wherever service is provided.

This chapter contains important information for the safe and reliable use of the SAMBA3G-E modem. Please read this chapter carefully before starting to use the cellular engine SAMBA3G.

2.1 General information

Your SAMBA3G-E device utilizes the GSM standard for cellular technology. GSM is a newer radio frequency („RF") technology than the current FM technology that has been used for radio communications for decades. The GSM standard has been established for use in the European community and elsewhere. Your SAMBA3G-E is actually a low power radio transmitter and receiver. It sends out and receives radio frequency energy. When you use your modem, the cellular system handling your calls controls both the radio frequency and the power level of your cellular modem.

2.2 Exposure to RF energy

There has been some public concern about possible health effects of using a GSM modem. Although research on health effects from RF energy has focused for many years on the current RF technology, scientists have begun research regarding newer radio technologies, such as GSM. After existing research had been reviewed, and after compliance to all applicable safety standards had been tested, it has been concluded that the product is fit for use.

If you are concerned about exposure to RF energy there are things you can do to minimize exposure. Obviously, limiting the duration of your calls will reduce your exposure to RF energy. In addition, you can reduce RF exposure by operating your cellular modem efficiently by following the guidelines below.

2.3 Driving

Check the laws and regulations on the use of cellular devices in the area where you drive. Always obey them. Also, when using your modem while driving, please pay full attention to driving, pull off the road and park before making or answering a data call if driving conditions so require. When applications are prepared for mobile use they should fulfil road-safety instructions of the current law!

2.4 Electronic devices

Most electronic equipment, for example in hospitals and motor vehicles is shielded from RF energy. However, RF energy may affect some malfunctioning or improperly shielded electronic equipment.

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2.5 Vehicle electronic equipment

Check your vehicle manufacturer's representative to determine if any on board electronic equipment is adequately shielded from RF energy.

2.6 Medical electronic equipment

Consult the manufacturer of any personal medical devices (such as pacemakers, hearing aids, etc.) to determine if they are adequately shielded from external RF energy.

Turn your SAMBA3G-E device OFF in health care facilities when any regulations posted in the area instruct you to do so. Hospitals or health care facilities may be using RF monitoring equipment.

2.7 Aircraft

Turn your SAMBA3G-E OFF before boarding any aircraft. Use it on the ground only with crew permission. Do not use it in the air.

To prevent possible interference with aircraft systems, Federal Aviation Administration (FAA) regulations require you to have permission from a crew member to use your modem while the plane is on the ground. To prevent interference with cellular systems, local RF regulations prohibit using your modem whilst airborne.

2.8 Children

Do not allow children to play with your SAMBA3G-E device. It is not a toy. Children could hurt themselves or others (by poking themselves or others in the eye with the antenna, for example). Children could damage the modem or make calls that increase your modem bills.

2.9 Blasting areas

To avoid interfering with blasting operations, turn your unit OFF when in a "blasting area" or in areas posted: "turn off two-way radio". Construction crew often uses remote control RF devices to set off explosives.

2.10 Potentially explosive atmospheres

Turn your SAMBA3G-E device **OFF** when in any area with a potentially explosive atmosphere. It is rare, but your modems or their accessories could generate sparks. Sparks in such areas could cause an explosion or fire resulting in bodily injury or even death.

Areas with a potentially explosive atmosphere are often, but not always, clearly marked. They include fuelling areas such as petrol stations; below decks on boats; fuel or chemical transfer or storage facilities; and areas where the air contains chemicals or particles, such as grain, dust or metal powders.

Do not transport or store flammable gas, liquid or explosives, in the compartment of your vehicle, which contains your modem or accessories.

Before using your modem in a vehicle powered by liquefied petroleum gas (such as propane or butane) ensure that the vehicle complies with the relevant fire and safety regulations of the country in which the vehicle is to be used.

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2.11 Non-ionizing radiation

The SAMBA3G-E comes with an internal antenna. Therefore, care should be taken to install the modem in such a position that no part of the human body will normally rest within 20 cm of any part of the modem. It is also recommended to use the modem not close to medical devices as for example hearing aids and pacemakers.

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3 SAFETY STANDARDS

Your GSM mobile complies with all applicable RF safety standards.

The GSM mobile meets the safety standards for RF receivers and the standards and recommendations for the protection of public exposure to RF electromagnetic energy established by government bodies and professional organizations, such as directives of the European Community, Directorate General V in matters of radio frequency electromagnetic energy.

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4 TECHNICAL DATA

4.1 General specifications of SAMBA3G

- ***Power supply:***
  - *+5 VDC through USB port, compliant with USB 2.0 specification.*
- ***Extended Temperature range:***
  - *Operational: -30 °C to +80 °C*
  - *Storage temperature: -40 °C to +90 °C*
- ***Physical characteristics:***
  - *Size: 88.7mm x 37.6mm x 14.1mm* ***(L x B x H)***
  - *Weight: 35 g*
- ***Frequency bands:***
  - *GSM 900, DCS 1800 MHz*
  - *WCDMA 2100 MHz*
  - *Compliant to GSM Phase 2/2+*
- ***Transmit power:***
  - *Class 4 (2 W) at EGSM 900*
  - *Class 1 (1 W) at GSM1800*
  - *Class 3 (0.25W) at WCDMA 2100*
  - *Class E2 (0.5W) at GSM 900 (EGPRS mode)*
  - *Class E2 (0.4W) at GSM1800 (EGPRS mode)*
- ***GPRS/EDGE connectivity:***
  - *GPRS multi-slot class 12*
  - *GPRS mobile station class B*
  - *EDGE multi-slot class 12*
  - *EDGE mobile station class B*
- ***DATA:***

HSDPA ⇒

- *Data downlink transfer: max. 7.2 Mbits/s.*
- *Data uplink transfer: max. 384 kbps.*

WCDMA ⇒

- *Data downlink/uplink transfer: max. 384 kbps.*

EDGE ⇒

- *EDGE data downlink transfer: max.* ***236.8*** *kbps (****4*** *x* ***downlink****). Achieving an average throughput of* ***80*** *to* ***160*** *kbps supporting* ***2-4*** *timeslots –our lab test results.*
- *EDGE data uplink transfer: max.* ***118.4*** *kbps (****2*** *x* ***uplink****).*
- *Modulation and Coding Scheme: MCS 1 - 9.*

GPRS ⇒

- *GPRS data downlink transfer: max. 85.6 kbps.*
- *GPRS data uplink transfer: max. 42.8 kbps.*
- *Coding Scheme CS 1 – 4.*
- *SAMBA3G-E supports two protocols PAP (Password Authentication Protocol) and CHAP (Challenge Handshake*

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Authentication Protocol) commonly used for PPP connections.

- *Supports of Packet Switched Broadcast Control Channel (PBCCH) allows you to benefit from enhanced GPRS performance when offered by the network operators.*

CSD ⇒

- *Downlink/Uplink up to 14.4 kbps.*

➥ ***Additional features:***

- *Voice and SMS*
- *Embedded TCP/IP stack with IP and UDP protocols, access via AT commands*
- *Standard and extended AT command set*
- *Minimal power consumption*
- *Firmware upgradeable via USB or via over-the-air*

➥ ***Audio interfaces:***

- *4pin audio jack for Headset*

➥ ***MMS:***

- *MMS compliant*

➥ ***FAX:***

- *Group 3: class 1, class 2*

➥ ***SIM interface:***

- *Slot for small SIM cards 3/1.8 V only*

➥ ***Casing:***

- *Fully shielded*

➥ ***USB port as slave:***

- *Bi-directional bus for AT commands and data*
- *USB 2.0 Full Speed (12 Mbit/s) slave interface*

Coding scheme	1 Timeslot	2 Timeslots	4 Timeslots
CS-1:	9.05 kbps	18.1 kbps	36.2 kbps
CS-2:	13.4 kbps	26.8 kbps	53.6 kbps
CS-3:	15.6 kbps	31.2 kbps	62.4 kbps
CS-4:	21.4 kbps	42.8 kbps	85.6 kbps

Table 3: GPRS Coding schemes and maximum network data rates over air interface

Please note that the values listed above are the maximum ratings which, in practice, are influenced by a great variety of factors, primarily, for example, traffic variations and network coverage.

EDGE is four times as efficient as GPRS. GPRS use four coding schemes (CS-1 to 4, see table 2) while EDGE use nine Modulation and Coding Schemes (MCS-1 to 9, see table 2.1).

Coding and modulation scheme (MCS)	Speed	Modulation
MCS-1:	8.80 kbit/s/slot	GMSK
MCS-2:	11.2 kbit/s/slot	GMSK
MCS-3:	14.8 kbit/s/slot	GMSK
MCS-4:	17.6 kbit/s/slot	GMSK
MCS-5:	22.4 kbit/s/slot	8-PSK
MCS-6:	29.6 kbit/s/slot	8-PSK
MCS-7:	44.8 kbit/s/slot	8-PSK
MCS-8:	54.4 kbit/s/slot	8-PSK
MCS-9:	59.2 kbit/s/slot	8-PSK

Table 3.1: EDGE Coding schemes

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5 INTERFACES IN OVERVIEW

The table below lists all interfaces available on the SAMBA3G-E modem:

Interface specifications	
USB	USB A-type plug connector is used to connect the modem to a a USB host. This interface USB 2.0 supports a Full Speed rate of 12 MBits/s.
LED	Used to show the status of the modem.
SIM	SIM card reader for small SIM cards (3/1.8V).
AUDIO	4pin jack for headset

Table 4: Modem interfaces

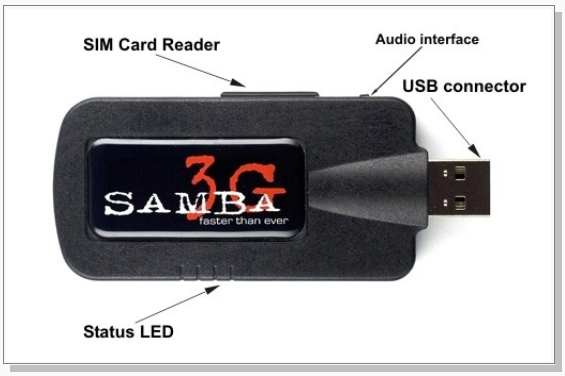

Figure 1: View of SAMBA3G-E interfaces.

5.1 4pin audio jack

The *SAMBA3G-E* modem has a 4pin audio interface for connecting a headset. For more details about the headset, see chapter *7.1 "Accessory"*.

Figure 2: 4pin audio jack (for plugging a headset) .

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The following table lists the contacts of the audio plug (headset) for mating with the audio jack type connector on the SAMBA3G-E.

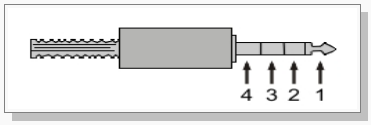

Figure 2.1: Contacts of a 4pin audio plug connector (for connecting to the audio jack on the SAMBA3G-E) .

PIN	PIN NAME	DESCRIPTION
1	SPK_P	Audio speaker +
2	MIC_N	Mic -
3	SPK_N	Audio speaker -
4	MIC_P	Mic +

Table 5: Contacts for 2.5 mm audio plug - headset (see *Fig. 2.1* as reference).

5.2 4pin USB Type A connector

The physical interface to the modem application is made through the USB connector which simplifies setup and operation of the modem. It allows direct connection to a USB host port and it gives you maximum life from your laptop's battery in that it draws power directly from the USB port and only uses the battery when plugged in.

Figure 3: Pinout of the USB connector

The following table lists the pin configuration of the USB connector on the SAMBA3G-E, viewed from face of plug.

PIN	NAME	DESCRIPTION
1	VCC	+ 5V
2	D -	Data -
3	D +	Data +
4	GND	Ground

Table 6: Pinout of the USB connector on the SAMABA3G modem

When the GPRS/EDGE data transfer is in progress, the SAMBA3G-E may require more power than is permitted by the specifications for a single USB port, which may rise to *600 – 700 mA in the data transmit burst*. By means of a dual input USB cable called "Y-cable" *(available upon request by FALCOM)* you are able to get extra power from 2nd USB port. The Y-cable offers 3 x USB connectors (incl. *2 x A-type plugs* and *1 x A-type receptacle*). Both A-type plugs should be plugged into the different Computer USB ports, while the A-type receptacle connector should be plugged into the SAMBA3G-E USB connector.

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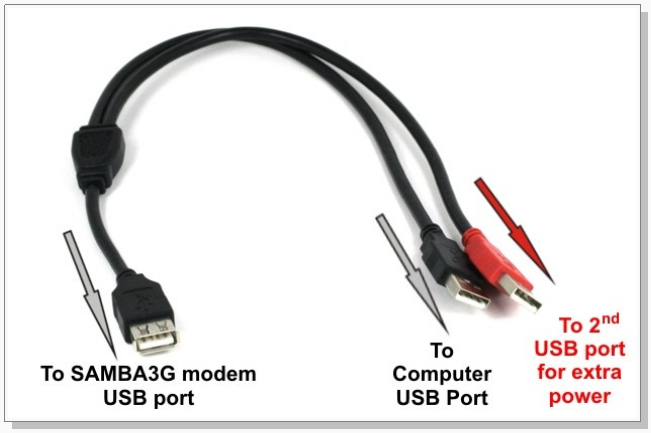

Figure 4: USB Y-Cable *(not included, available upon request)*

5.3 Status LED

The actual state of the SAMBA3G-E is displayed by one LED *(its functionality is given in table below)*.

Figure 5: Status LED

It is a debug aid that shows information on the network service availability.

Name	LED mode	Function
Status LED	Off	Modem is off
	Fast blinking (period 1s, Ton 0,5s)	Net search / Not registered / turning off
	Slow blinking (period 3s, Ton 0,3s)	Registered: full service
	Permanently on	A call is active

Table 7: Associated functions of the status LED.

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5.4 SIM-Card Reader

The SIM interface controls 3 and 1.8V SIM cards. This interface is fully compliant with GSM *11.11* recommendations concerning SIM functions.

Figure 6: SIM Card interface

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6 SYSTEM REQUIREMENTS

Check your hardware and software and see if they satisfy the requirements below. If you are not sure, please consult your vendor or operator.

6.1 Hardware & software requirements

Hardware & software requirements

- ✓ *A valid SIM card (with UMTS enabled).*
- ✓ *2 x Free compatible USB port*
- ✓ *Approximately 6 Mb of free hard disk space.*
- ✓ *Pentium 90 or higher.*
- ✓ *Operating system: Windows® XP*
- ✓ *CD-ROM drive.*

For data applications.

- ✓ *Browser and email client.*

6.2 Getting started with SAMBA3G-E

6.2.1 Setting up your Modem in Windows® XP

This chapter describes how to install your SAMBA3G-E in Windows. It is recommended that all-important files in your computer are backed up before the installation.

1- Inserting the SIM card:

SAMBA3G-E requires a small SIM card, which is provided by your mobile phone service provider. This contains the telephone number of SAMBA3G-E will use, as well as other customer information. To use UMTS services the SIM card should be UMTS-enabled.

a) How to insert a SIM card:

- ✓ *Insert the SIM card into the corresponding SIM card reader of the modem as shown in figure below and slide it forward until it stops. The bevelled corner of the SIM card has to be on the left side of SIM card reader and the golden contact area is facing downwards. Make sure that the SIM card is sit firmly into the SIM card reader slot. See also figures below.*

Figure 7.a: Insert the SIM Card.

Figure 7.b: Push it forward into the SIM-holder until it stops.

Figure 7.c: To remove the SIM, press the edge of card using your finger nail or a pointed object.

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b) How to remove the SIM card:

✓ *To remove the SIM card, just press the inserted SIM card by using your finger nail or a pointed object. The SIM card will jump out when you release it. Finally, take it out.*

Important: *Do **not** insert or remove the SIM card when the device is under power.*

Keep all miniature SIM cards out small children's reach. The SIM card and its contacts can be damaged by scratches or bending, so be careful when handling, inserting or removing the SIM card.

2 - How to use SAMBA3G-E phone with a terminal software, only

This step explains the methods of installing the USB driver for the SAMBA3G-E, and enable communication between the modem and host device through the USB port.

If you are using MobilePhoneTool software, first read the CAUTION below and then refer to the description available in the software installation folder, otherwise follow the steps below.

To install the SAMBA3G-E modem in a computer running Windows XP, follow these steps:

A) *First of all, download the USB driver for SAMBA3G-E from the FALCOM website "http://www.falcom.de/uploads/media/Samba3G_USB_Driver.zip".*

B) *Unpack the downloaded .zip file and then plug the SAMBA3G-E USB connector into the USB socket of the docking station (see chapter "Scope of delivery' - SAMBA-USB-Kit) and then connect the the docking station to a free USB port on your host device. You can also use the Y-Cable (see Figure 4) to get extra power from 2nd USB port when the modem requires it (e.g. when using EDGE services).*

Figure 8: Connecting SAMBA 3G-E

CAUTION : In order to comply with RF exposure requirements, install the terminal so that a minimum distance of 20 cm can be maintained between the modem and persons.

C) When the modem is connected to the host device, Windows pops up a balloon with the text "Data interface" near the Windows try. Shortly after, the "Found New Hardware Wizard" screen will appear. To continue, select the "No, not this time" option and then click Next.

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D) *On the next screen, select the **"Install from a list or specific location(Advanced)"** option and then click **Next.***

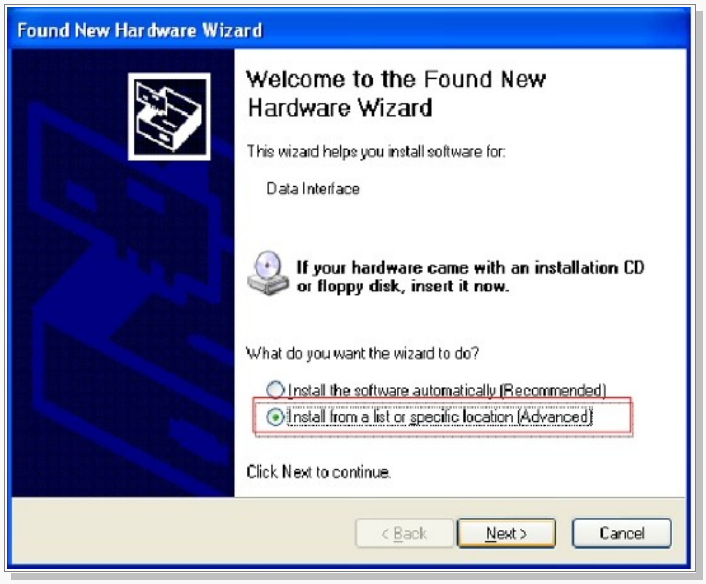
Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install software for:
Data Interface
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

Figure 9: Searching modem USB driver

E) *The **"Please choose your search and installation options"** dialog will appear. Select the **"Include this location in the search"** option under **"Search for the best driver in these locations"**, and then use the **Browse** button to navigate to the unzipped USB Modem folder (e.g. **"D:\Samba3G_USB_Driver"**).*

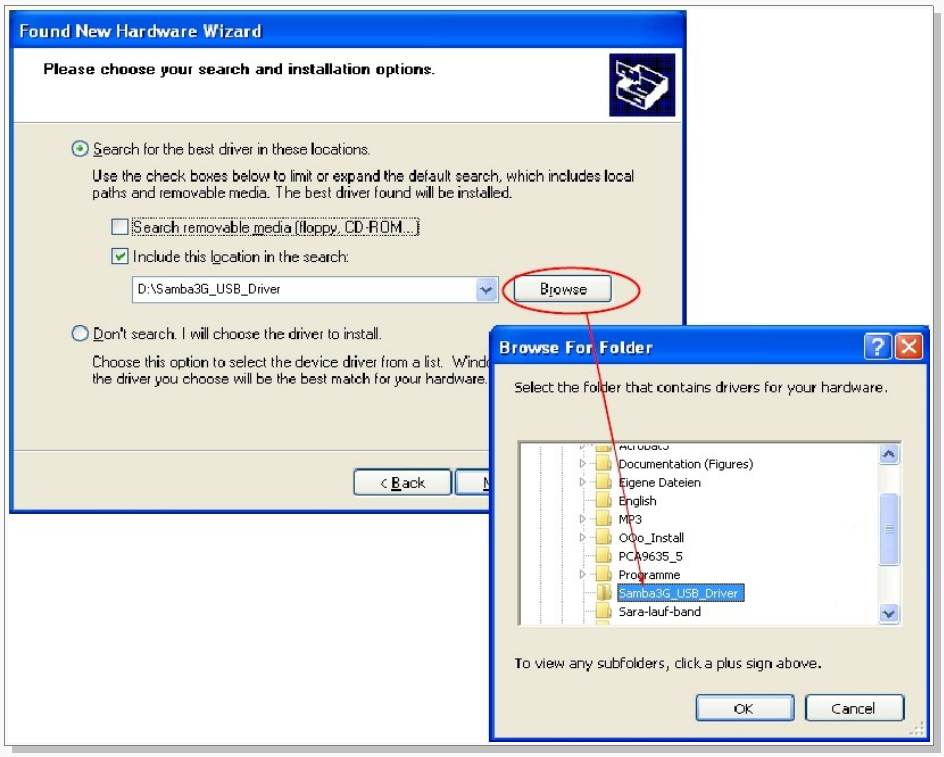
Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
D:\Samba3G_USB_Driver
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list.
the driver you choose will be the best match for your hardware.
< Back
Browse For Folder
Select the folder that contains drivers for your hardware.
Documentation (Figures)
Eigene Dateien
English
MP3
Odo_Install
PCA9635_5
Programme
Samba3G_USB_Driver
Sara-lauf-band
To view any subfolders, click a plus sign above.
OK
Cancel

Figure 10: Browsing to modem USB driver

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F) Wizard copies the driver files automatically.

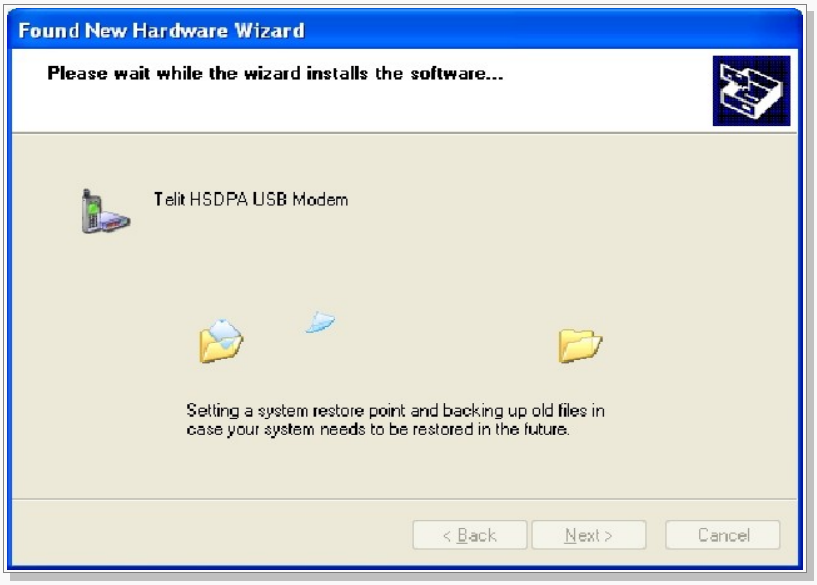
Found New Hardware Wizard
Please wait while the wizard installs the software...
Telit HSDPA USB Modem
Setting a system restore point and backing up old files in case your system needs to be restored in the future.
< Back
Next >
Cancel

Figure 11: Installing modem USB driver

*During the installation, if popup window appears, just click the **"Continue Anyway"**.*

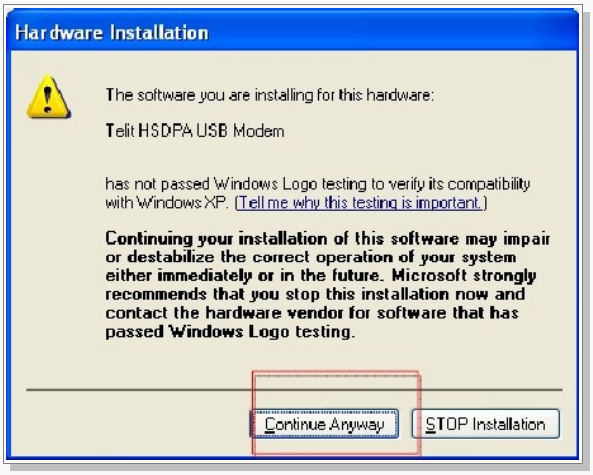
Hardware Installation
The software you are installing for this hardware:
Telit HSDPA USB Modem
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

Figure 12: Browsing to modem USB driver

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G) *When the **"Completing the Found New Hardware Wizard"** screen appears, click **Finish**.*

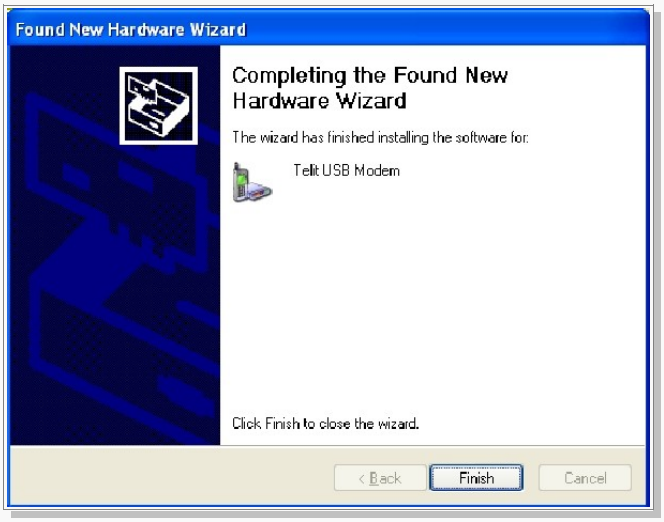

Figure 13: Completing modem USB driver

H) *After the installation of SAMBA3G-E USB Modem, Hardware Wizard will appear 2 times more to install **Telit Auxiliary Port** and **Telit Diagnostics Interface.** You are able to install these two drivers as same way. Through process above, Windows installed **Telit USB Modem**, **Telit Auxiliary Port** and **Telit Diagnostics Interface.** You can check the result in the **Modem** item and **Port** item of the **Device Manager.** Go to "**My Computer → Properties → Hardware → Device Manager**".*

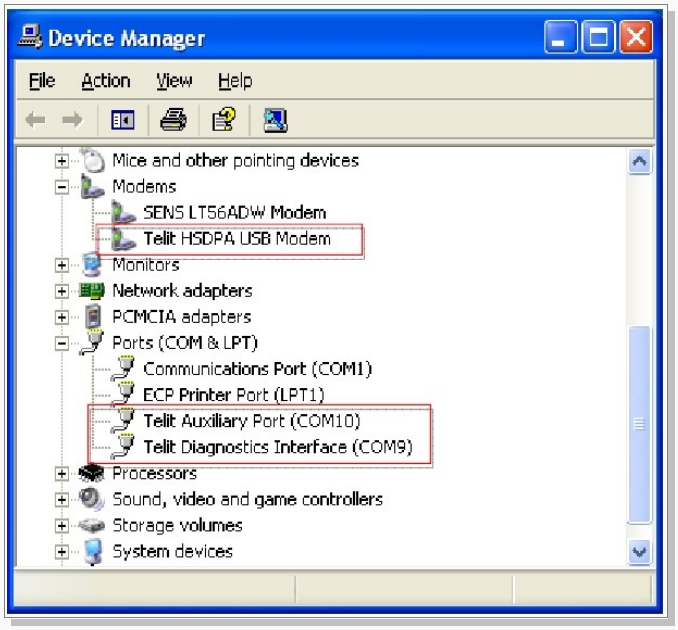

Figure 14: Installed USB driver

*The driver installation is completed after the Windows pops up a balloon with the text **"Your new hardware is installed and ready to use"** near the Windows try.*

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3 - Plug a headset to the audio jack on modem:

If you are using the included headset *(refer to the chapter Appendix for more details)*, then plug the *2.5 mm plug* of the headset into the *2.5 mm jack* of the modem *(see figure below)*.

Figure 15: Connect the headset to the modem

4 - Setup HyperTerminal program

To communicate with the SAMBA3G-E modem, start the HyperTerminal program or another terminal program, and then use the AT commands available in the corresponding manual.

To start the HyperTerminal go to:

***START – PROGRAMS – ACCESSORIES –COMMUNICATION – HYPERTERMINAL**, then start the software **HyperTerminal**, assign the name of your choice (e.g. SAMBA3G-E), click on the icon of your choice, then click OK. On the appeared dialog box choose:*

Connect using: *e.g.* ***COM10*** *(COM port assigned to* ***"Telit Auxiliary Port*** *")*

Then click on ***OK****. On the properties of the selected COM port choose:*

Properties: *choose* ***115200*** *bps –* ***8*** *bits data –* ***no parity*** *–* ***1*** *stop bit –* ***hardware flow control***

Finally click on ***OK****.*

Once ***HyperTerminal*** *is opened and configured (see* ***Fig. 16****), use AT commands to to perform your specific settings.*

To test the SAMBA3G-E phone type on the terminal screen:

AT*<enter>*

Modem responds:

OK

If you don't see the characters you are typing, enter ***ATE1*** *and then press (↵) enter key.*

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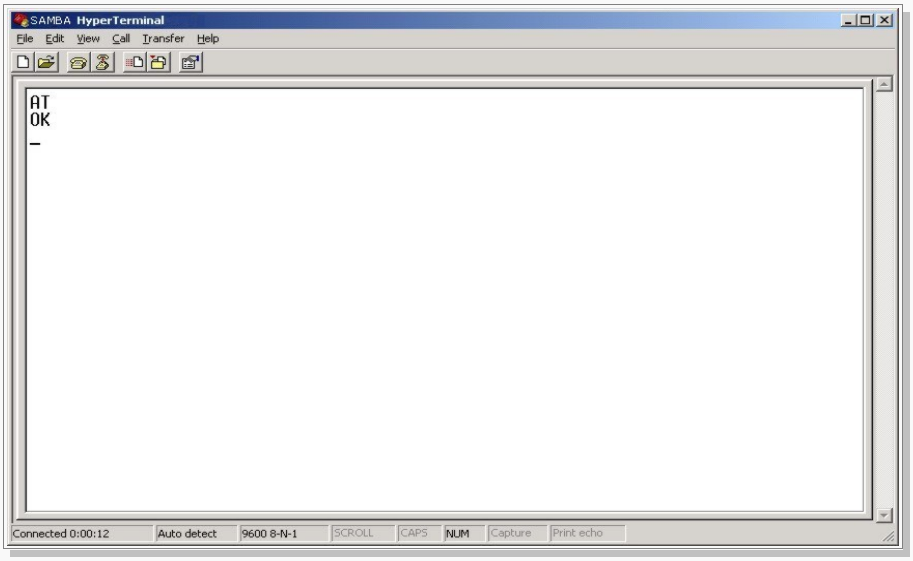

Figure 16: HyperTerminal screen.

To enter the PIN code of the used SIM card type on the terminal screen:

AT+CPIN=pin<*enter*> *// pin = PIN code of your SIM card*

Modem responds:

OK

The SAMBA3G-E will go into the search mode and the Status LED will operate as described in ***Table 6.***

For more information about AT commands, please refer to the manual ***"Telit_AT_Commands_Reference_Guide_UC864.pdf"*** *available in the FALCOM website.*

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7 APPENDIX

7.1 Accessory headset for SAMBA3G-E

The retractable Headset with a 2.5mm plug *(see also figure below)* included in the ***SAMBA3G-E-SET*** fully compatible with *SAMBA3G-E* phone is designed to do two things at once, if those two things are driving and talking on the cell phone. The retractable Headset is lightweight, super-easy to use, comfortable, and has great incoming and outgoing sound quality. Retractable quality earpiece and microphone pulling out to desired length independently. The retractable cord length is 78 mm. The headset length is 1m. You have just to connect it to the corresponded connector of *SAMBA3G-E*. To wear the earpiece, simply pull it out of its casing slowly until you reach the sufficient length and sit it inside the ear. Should the length of the cable too long/short, pull the cable slowly out or retract while holding the both sides onto the cable until the length is suitable.

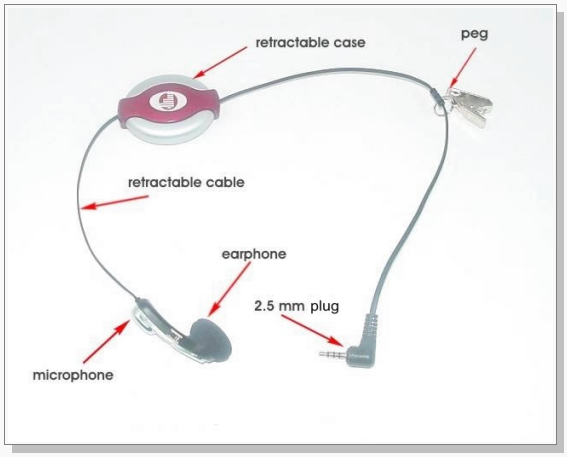

Figure 17: Installed USB driver

If the user is using other external headset please follow the characteristics for different microphone inputs and different speaker outputs:

Items to be inspected	**Acceptance criterion**		
Sensitivity	-41 ±3dB (0dB=1 V/Pa @ 1kHz)		
Frequency response	Limits		
	Freq. (Hz)	Lower limit	Upper limit
	100		-38
	200		-38
	300	-50	-38
	1000	-44	-38
	2000	-44	-34
	3000	-44	-34
	3400	-44	-34
	4000	-47	-34
Current consumption	1 mA (max.)		
Operating voltage	DC 1 to 3 V (min.)		
S/N ratio	55 dB minimum (A-Curve at 1 kHz, 1 Pa)		
Directivity	Omni-directional		
Max. input sound pressure level	100 dB SPL (1 kHz) Maximum distortion 1 %		
Radio frequency protection	Over 800-1200 MHz and 1700-2000MHz, S/N ratio 500 dB minimum (signal 1 kHz, 1 Pa)		

Table 8: Headset characteristics

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